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EXAMINER

MCHENRY, KEVIN L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1725

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

12-6

Office Action Summary

Application No.

09/779,961

Applicant(s)

MELEKIAN ET AL.

Examiner

Kevin L McHenry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Response to Amendment

1. Upon carefully reviewing applicant's amendment filed 13 August 2002, the examiner acknowledges the amendments to claims 1, 9, 11, and 19. The former 112 rejections are withdrawn in view of applicant's amendments.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Gale (U.S.P. 1,323,178).

Glaze teaches a differential housing that has a curved surface and has a snorkel, particularly a rear housing portion, fastened to its surface (see U.S.P. 4,754,847; particularly Figures 1 and 5; column 6, lines 32-41).

Glaze does not teach how the differential housing surface and snorkel are fastened together.

Danjou et al. teaches a differential housing in which the differential housing is welded together and blanks are welded to the housing. Danjou et al. do not teach an particular method of welding (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Gale teaches a process of welding surfaces together, particularly asymmetrical surfaces with different cross sections without preheating, by creating an electric potential between surfaces to be welded when they are brought closely together so that an electric discharge, or sparking contact, is made. This electric discharge creates heat at the surfaces and allows the surfaces to be welded together (see U.S.P. 1,323,178; particularly Figures 2, 3, and 5; page 1, lines 11-25, 44-48; page 2, lines 17-25, 39-42, 58-62; page 3, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Glaze by those of Danjou et al. and Gale. One would have been motivated to do so in order to provide a means of fastening the differential housing surface and the snorkel together by using welding as a fastening means, as taught by Danjou et al. One would have been motivated to use the welding method taught by Gale as a specific welding means for fastening the parts and also as a welding means for fastening parts of different cross section, as taught by Gale.

In regards to product claims 11-20, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a snorkel by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

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4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Gale (U.S.P. 1,323,178) as applied to claims 1-3, and 9-20 above, and further in view of Cox (U.S.P. 2,911,516).

The former references teach the process as described above in section 3. However, these references do not teach that the surfaces are moved apart, moved back in proximity to one another, applied together, and then repeated until the surfaces are welded together.

Cox teaches a process of flash butt welding surfaces together in which the surfaces to be welded have an electrical potential between them and the surfaces are brought together. The surfaces are then spread apart. Cox teaches that this process is repeated until the surfaces are uniformly heated to a welding temperature and then the surfaces are forced together to complete the weld (see U.S.P. 2,911,516; particularly column 1, lines 27-37).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cox. One would have been motivated to do so in order to have provided a method of uniformly heating the surfaces to the welding temperature before fastening them together.

5. Claims 1, 6 and 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Larsen (U.S.P. 4,552,609).

Glaze teaches a differential housing that has a curved surface and has a snorkel, particularly a rear housing portion, fastened to its surface (see U.S.P. 4,754,847; particularly Figures 1 and 5; column 6, lines 32-41).

Glaze does not teach how the differential housing surface and snorkel are fastened together.

Danjou et al. teaches a differential housing in which the differential housing is welded together and blanks are welded to the housing. Danjou et al. do not teach an particular method of welding (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Larsen teaches a process of friction welding surfaces together in which one surface is rotated relative to another surface. Larsen teaches that this process allows for rotational friction welding in which the rotated part can be precisely oriented by its rotational position to the fixed surface, the welding process is low in cost, the welding process is uniform, and dissimilar metals may be welded together. Larsen rotates parts that are oblong and asymmetrical about a rotational axis (see U.S.P. 4,552,609; particularly Figure 10; column 1, lines 5-35; column 2, lines 10-18; column 5, lines 6-13).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Glaze by those of Danjou et al. and Larsen. One would have been motivated to do so in order to provide a means of fastening the differential housing surface and the snorkel together by using welding as a fastening means, as taught by Danjou et al. One would have been motivated to use the welding method taught by Larsen as a specific welding means for

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fastening the parts and also for providing a welding method that is low in cost, is uniform, and allows welding of dissimilar metals, as Larsen teaches.

In regards to product claims 11-20, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a snorkel by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

6. Claims 1, 6, 7, and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Brownell et al. (U.S.P. 6,095,402), Walker et al. (U.S.P. 6,106,233), or Mahoney et al. (U.S.P. 6,237,834).

Glaze teaches a differential housing that has a curved surface and has a snorkel, particularly a rear housing portion, fastened to its surface (see U.S.P. 4,754,847; particularly Figures 1 and 5; column 6, lines 32-41).

Glaze does not teach how the differential housing surface and snorkel are fastened together.

Danjou et al. teaches a differential housing in which the differential housing is welded together and blanks are welded to the housing. Danjou et al. do not teach an particular method of welding (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Brownell et al., Walker et al., and Mahoney et al. all teach methods of fastening surfaces together by linear friction welding. In each of these references the surfaces have different shapes and different cross sections where they are joined. Brownell et al. teach that their method keeps the weld within a fillet radius (see U.S.P. 6,095,402; particularly Figure 6; column 2, lines 7-12; column 6, lines 15-18). Walker et al. teach that their method provides reduced stress on the weld and prevents flash (see U.S.P. 6,106,233; particularly Figure 3; column 3, lines 1-52). Mahoney et al. teach that their process is precise, low in cost, and less labor intensive (see U.S.P. 6,237,834; particularly Figure 2; column 1, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Glaze by those of Danjou et al. and Brownell et al., Walker et al., or Mahoney et al. One would have been motivated to do so in order to provide a means of fastening the differential housing surface and the snorkel together by using welding as a fastening means, as taught by Danjou et al. One would have been motivated to use the welding methods taught by Brownell et al., Walker et al., or Mahoney et al. as specific welding means for fastening the parts and also to use a welding method that provides reduced stress for the weld and prevents flash during welding, as Walker et al. teach, to use a welding method that keeps the weld within a fillet radius, as Brownell et al. teach, or to use a welding method that is precise, low in cost, and less labor intensive, as Mahoney et al. teach.

In regards to product claims 11-20, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a snorkel by flash butt welding or frictional welding). When the examiner has found a

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substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

7. Claims 1-3 and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al. (U.S.P. 4,221,138) in view of Gale (U.S.P. 1,323,178).

Stewart et al. teach a differential housing that is made by fitting two blank surfaces together and then welding the surfaces together. Stewart et al. also teach that an additional blank surface, particularly a channel stamping, can be fitted and welding to the interior of the housing (see U.S.P. 4,221,138; particularly Figures 2, 5, and 7; column 1, lines 6-11; column 3, lines 6-38).

Stewart et al. do not teach a specific welding method.

Gale teaches a process of welding surfaces together, particularly asymmetrical surfaces with different cross sections without preheating, by creating an electric potential between surfaces to be welded when they are brought closely together so that an electric discharge, or sparking contact, is made. This electric discharge creates heat at the surfaces and allows the surfaces to be welded together (see U.S.P. 1,323,178; particularly Figures 2, 3, and 5; page 1, lines 11-25, 44-48; page 2, lines 17-25, 39-42, 58-62; page 3, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Stewart et al. by those of Gale. One would have been motivated to use the welding method taught by Gale as a

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specific welding means for fastening the parts and also as a welding means for fastening parts of different cross section, as taught by Gale.

In regards to product claims 11-18, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al. (U.S.P. 4,221,138) in view of Gale (U.S.P. 1,323,178) as applied to claims 1-3, and 11-18 above, and further in view of Cox (U.S.P. 2,911,516).

The former references teach the process as described above in section 7. However, these references do not teach that the surfaces are moved apart, moved back in proximity to one another, applied together, and then repeated until the surfaces are welded together.

Cox teaches a process of flash butt welding surfaces together in which the surfaces to be welded have an electrical potential between them and the surfaces are brought together. The surfaces are then spread apart. Cox teaches that this process is repeated until the surfaces are uniformly heated to a welding temperature and then the surfaces are forced together to complete the weld (see U.S.P. 2,911,516; particularly column 1, lines 27-37).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cox. One would have been motivated to do so in order to have provided a method of uniformly heating the surfaces to the welding temperature before fastening them together.

9. Claims 1, 6, 8, and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al. (U.S.P. 4,221,138) in view of Larsen (U.S.P. 4,552,609).

Stewart et al. teach a differential housing that is made by fitting two blank surfaces together and then welding the surfaces together. Stewart et al. also teach that an additional blank surface, particularly a channel stamping, can be fitted and welding to the interior of the housing (see U.S.P. 4,221,138; particularly Figures 2, 5, and 7; column 1, lines 6-11; column 3, lines 6-38).

Stewart et al. do not teach a specific welding method.

Larsen teaches a process of friction welding surfaces together in which one surface is rotated relative to another surface. Larsen teaches that this process allows for rotational friction welding in which the rotated part can be precisely oriented by its rotational position to the fixed surface, the welding process is low in cost, the welding process is uniform, and dissimilar metals may be welded together. Larsen rotates parts that are oblong and asymmetrical about a rotational axis (see U.S.P. 4,552,609; particularly Figure 10; column 1, lines 5-35; column 2, lines 10-18; column 5, lines 6-13).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Stewart et al. by those of Larsen. One would have been motivated to use the welding method taught by Larsen as a specific welding means for fastening the parts and also for providing a welding method that is low in cost, is uniform, and allows welding of dissimilar metals, as Larsen teaches.

In regards to product claims 11-18, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

10. Claims 1-3, 9, and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al. (U.S.P. 5,442,977) in view of Gale (U.S.P. 1,323,178).

Danjou et al. teach a differential housing that is made by fitting a curved differential housing surface and other differential housing surfaces together and then joining the surfaces through welding. Danjou et al. also teach that additional blank surfaces, particularly flange portions, can be fitted and welded to the differential housing (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Danjou et al. do not teach a specific welding method.

Gale teaches a process of welding surfaces together, particularly asymmetrical surfaces with different cross sections without preheating, by creating an electric potential between surfaces to be welded when they are brought closely together so that an electric discharge, or sparking contact, is made. This electric discharge creates heat at the surfaces and allows the surfaces to be welded together (see U.S.P. 1,323,178; particularly Figures 2, 3, and 5; page 1, lines 11-25, 44-48; page 2, lines 17-25, 39-42, 58-62; page 3, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Danjou et al. by those of Gale. One would have been motivated to use the welding method taught by Gale as a specific welding means for fastening the parts and also as a welding means for fastening parts of different cross section, as taught by Gale.

In regards to product claims 11-19, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

11. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al. (U.S.P. 5,442,977) in view of Gale (U.S.P. 1,323,178) as applied to claims 1-3, 9, and 11-19 above, and further in view of Cox (U.S.P. 2,911,516).

The former references teach the process as described above in section 10. However, these references do not teach that the surfaces are moved apart, moved back in proximity to one another, applied together, and then repeated until the surfaces are welded together.

Cox teaches a process of flash butt welding surfaces together in which the surfaces to be welded have an electrical potential between them and the surfaces are brought together. The surfaces are then spread apart. Cox teaches that this process is repeated until the surfaces are uniformly heated to a welding temperature and then the surfaces are forced together to complete the weld (see U.S.P. 2,911,516; particularly column 1, lines 27-37).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cox. One would have been motivated to do so in order to have provided a method of uniformly heating the surfaces to the welding temperature before fastening them together.

12. Claims 1, 6, 8, 9, and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al. (U.S.P. 5,442,977) in view of Larsen (U.S.P. 4,552,609).

Danjou et al. teach a differential housing that is made by fitting a curved differential housing surface and other differential housing surfaces together and then joining the surfaces through welding. Danjou et al. also teach that additional blank surfaces, particularly flange portions, can be fitted and welded to the differential

housing (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Danjou et al. do not teach a specific welding method.

Larsen teaches a process of friction welding surfaces together in which one surface is rotated relative to another surface. Larsen teaches that this process allows for rotational friction welding in which the rotated part can be precisely oriented by its rotational position to the fixed surface, the welding process is low in cost, the welding process is uniform, and dissimilar metals may be welded together. Larsen rotates parts that are oblong and asymmetrical about a rotational axis (see U.S.P. 4,552,609; particularly Figure 10; column 1, lines 5-35; column 2, lines 10-18; column 5, lines 6-13).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Danjou et al. by those of Larsen. One would have been motivated to use the welding method taught by Larsen as a specific welding means for fastening the parts and also for providing a welding method that is low in cost, is uniform, and allows welding of dissimilar metals, as Larsen teaches.

In regards to product claims 11-19, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to

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show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

13. Claims 1, 6, 7, 9, and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al (U.S.P. 5,442,977) in view of Brownell et al. (U.S.P. 6,095,402), Walker et al. (U.S.P. 6,106,233), or Mahoney et al. (U.S.P. 6,237,834).

Danjou et al. teach a differential housing that is made by fitting a curved differential housing surface and other differential housing surfaces together and then joining the surfaces through welding. Danjou et al. also teach that additional blank surfaces, particularly flange portions, can be fitted and welded to the differential housing (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Danjou et al. do not teach a specific welding method.

Brownell et al., Walker et al., and Mahoney et al. all teach methods of fastening surfaces together by linear friction welding. In each of these references the surfaces have different shapes and different cross sections where they are joined. Brownell et al. teach that their method keeps the weld within a fillet radius (see U.S.P. 6,095,402; particularly Figure 6; column 2, lines 7-12; column 6, lines 15-18). Walker et al. teach that their method provides reduced stress on the weld and prevents flash (see U.S.P. 6,106,233; particularly Figure 3; column 3, lines 1-52). Mahoney et al. teach that their process is precise, low in cost, and less labor intensive (see U.S.P. 6,237,834; particularly Figure 2; column 1, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Danjou et al. by those of Brownell et al., Walker et al., or Mahoney et al. One would have been motivated to use the welding methods taught by Brownell et al., Walker et al., or Mahoney et al. as specific welding means for fastening the parts and also to use a welding method that provides reduced stress for the weld and prevents flash during welding, as Walker et al. teach, to use a welding method that keeps the weld within a fillet radius, as Brownell et al. teach, or to use a welding method that is precise, low in cost, and less labor intensive, as Mahoney et al. teach.

In regards to product claims 11-19, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

14. Claims 1 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior (AAP) art.

In the applicant's disclosure, the applicant notes AAP (see Figures 1A and 1) wherein a curved differential housing and a snorkel are fitted together and then welded with an arc. This process would have the property of generating heat from at least one of the surfaces at their interface because the arc would quickly heat both parts and cause

heat to flow between the parts at their interface through conduction, convection, and/or radiative transfer. This heat created by the arc would be sufficient to weld the surfaces together, as shown in Figures 1A and 1.

It would have been obvious to one of ordinary skill in the art that the steps of welding and applying the surfaces together, as cited by the applicant, could be conducted in any sequence as the steps are a list of steps and not a specific sequence of steps. This interpretation is apparent when considering the electric arc butt welding process cited by the applicant (see claims 2-4 and 12-14), wherein heat can be generated between the surfaces before they contact, versus the friction welding process cited by the applicant (see claims 6 and 16), wherein heat can only be generated between the surfaces after they contact.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuchuk-Yatsenko et al. (U.S.P. 4,733,044), Tonelli (U.S.P. 3,251,127), and Reed (U.S.P. 1,828,340) are cited of interest for illustrating the state of the art in flash welding and friction welding processes.

Response to Arguments

16. Applicant's arguments filed 13 August 2002 have been fully considered but they are not persuasive.

Applicant's arguments regarding Glaze are moot in light of the new rejection

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noted above. The examiner notes that Glaze does teach that "The rear housing portion 266 is fastened to the differential housing 42." In lines 38-39 of column 6. The examiner also notes that motivation for combining the teachings of the additional references with Glaze is noted in the new rejection above.

Applicant's argument that Cox does not teach the features cited in claims 4 and 5 is unpersuasive. As noted in the action above, Cox teaches that abutting workpieces are separated and this process is repeated until the pieces are heated to the welding temperature before upsetting the pieces together. While Cox teaches that the workpieces are placed together, the teachings of Cox do not end at that point.

In response to applicant's argument that the secondary references (Gale, Cox, Larson, Mahoney et al., Walker et al., and Brownell et al.) are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the references are reasonably pertinent to the problem that the applicant was concerned with; i.e., welding together parts by generating heat from at least one of the surfaces at their interface. These secondary references accomplish this through the processes of flash butt welding and friction welding. As with the applicant's invention, these references also teach the welding of parts that are asymmetric and have different cross-section than one another. Furthermore, the secondary references teach the process limitations cited by the applicant; the processes of flash butt welding and friction welding cited by the applicant are well known in the art and these processes


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have been used to join parts of different shape, size, cross-sections, and parts asymmetric to a central axis.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



October 29, 2002



M. ALEXANDRA ELVE
PRIMARY EXAMINER